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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/595,804	06/16/2000	Eric C. Hannah	INTL-0372-US (P8591)	3494
21906	7590	08/08/2005	EXAMINER	
TROP PRUNER & HU, PC 8554 KATY FREEWAY SUITE 100 HOUSTON, TX 77024			ARANI, TAGHI T	
			ART UNIT	PAPER NUMBER
			2131	

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/595,804

Applicant(s)

HANNAH ET AL.

Examiner

Taghi T. Arani

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 11-15 and 18-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 1-5, 11-15 and 18-33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-15, 17-26 were pending.

Claims 6-10 and 17 are now cancelled.

Claims 27-33 are newly added.

Claims 1, 12, 18, 19 and 26 are amended.

Claims 1-5, 11-15, and 18-33 have been examined and are pending.

### **Response to Amendment**

2. Applicant's amendment filed 5/26/2005 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

As per Applicant's argument relating to the rejection of independent claims 12 and 18, the Applicant argues that McAdam merely discloses reversing, inverting, or line scan scrambling a video line or video line segment, not adding anything to the line or line segment and that the actions performed on the video lines are performed digitally, rather than on an analog video signal, as recited. The examiner disagrees. McAdam discloses [column 7, line 19] "The video signal on line 24 .....is digitized by the analog to digital converter. That is, the actions performed on an analog video signal since it is digitized by the A/D 24. As for adding a graphic pattern to a frame of an analog video signal, McAdam expressly discloses [column 7, lines 25-32] the digitized video signal is stored in a random access memory 34 and are read from the random access memory 34 in a

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sequence and inverted and line spin scrambled applied (added) to the video line or video line segment [a frame of video signal].

As per Applicant's Arguments relating to the rejection of claims 1, the Applicant merely argues that Williams does not teach or suggest broadcasting audio and video signals on accompanying subcarriers, as recited by amended claim 1. That is, the claimed audio signals are not transmitted in the vertical blanking interval as in Williams, but instead as overlapping subcarriers accompanying the subcarrier of the video signals. The Examiner responds that Williams expressly teaches [column 2, lines 44-67] that block of transformed digital data is used to modulate a single carrier signal using OFDM [orthogonal frequency division multiplexing] where the modulated carrier signal can be viewed as being comprised of mutually orthogonal carrier signals (subcarriers] and since the transformed components of the digital data are mutually orthogonal, the carrier channels can have overlapping frequency spectra. That is the digital data before being transmitted in the vertical banking interval of a television signal is modulated using OFDM, hence being transmitted using a plurality of subcarriers.

### **Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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3. Claims 12, 11, 18 and 28-29 are rejected under 35 U.S.C. 102(b) as being anticipated by prior art of record, McAdam et al. (US Patent, 4,964,162).

As per claims 12, McAdam et al teach a television transmitter comprising:

- a graphics pattern generator to provide a graphics pattern to add to a frame of an analog video signal to form an obscured video signal [column 7, line 14 through column 8 line 11, see figure 1, VIDEO ENCODER 22];
- an analog-to-digital converter coupled to receive an analog audio signal [figure 8, AID CONVERTER 160];
- a digital encryption stage coupled to said analog-to-digital converter to generate a digital audio signal [figure 8, ENCRYPTOR 162]; and
- a modulator coupled to said stage to generate a modulated audio signal [figure 8, SQPR MODULATOR 170].
- a broadcaster to transmit the obscured signal and the modulated audio signal [column 15, lines 37-57].

**As per claim 18**, McAdam, et al. teach a television receiver comprising:

- a video detector to separate a received television signal into audio and video components [column 16, line 5 through column 17, line 25, see also figure 12, AUDIO/VIDEO SEPARATOR];
- a device coupled to said video detector to remove a graphics overlay added to a frame of an analog video signal obtained from the received television signal [figure 12, VIDEO DECODER 222, see also column 4, lines 39-67];

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- an digital-to-analog converter coupled to said audio signal [digitizing, column 19, line 21];
- a decryption stage coupled to said converter [figure 15, DECRYPTOR 310]; and
- a demodulator coupled to said stage to demodulate a carrier [figure 15, SQPR DEMODULATOR 300].

**As per claim 30**, McAdam et al. teach the receiver of claim 18, further comprising a frame buffer coupled to the video detector to store the frame of the analog video signal [column 4, lines 47-49, compensated scrambled video signal is stored in a random access memory].

**As per claim 31**, McAdam et al. teach the receiver of claim 18, further comprising a software routine [column 4, line 40, video decoder] to receive a pattern identifier [column 4, lines 58-68, transform identifier] associated with the graphics overlay and to generate a complementary graphics overlay based on the pattern identifier [column 4, lines 63-68].

**As per claim 32**, McAdam et al. teach the receiver of claim 31, wherein the software routine is to add the complementary graphics overlay to the frame of the analog video signal [column 5, lines 1-13].

**As per claim 33**, McAdam et al. teach the television transmitter of claim 12, wherein the modulator is to band limit the modulated audio signal [column 4, lines 26-29].

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 11 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over prior art of record, McAdam et al. and further in view of Williams.

**As per claim 1**, McAdam et al. teach a method of broadcasting television programming including:

- generating an analog video signal [column 7, lines 19-21, see also column 7, lines 41-59];
- digitally encrypting an audio signal to provide a digitally encrypted audio signal [figure 8, A/D CONVERTER 160, ENCRYPTOR 162, see also column 4, Lines 19-39];
- modulating a carrier with said digitally encrypted audio signal and said analog video signal [column 15, lines 51-54]; and
- broadcasting said audio and video signals [column 15, lines 40-41],

McAdam et al. fails to teach wherein said digitally encrypted audio signal is broadcast using a plurality of overlapping subcarriers and the video signal is broadcast using an accompanying subcarrier.

Williams teaches broadcasting digital data in the vertical blanking interval of a television signal [broadcasting video signal using an accompanying subcarrier] using a plurality of overlapping subcarriers [column 2, line 44 through col. 3 line 18, see also abstract].

It would have been obvious to one of ordinary skill in the art to modify McAdam et al.'s method of broadcasting television programming with the teaching of Williams to broadcast the digitally encrypted audio signal using a plurality of subcarriers, because plurality of subcarriers with lower frequencies can be transmitted with more immunity than single modulated higher frequency [Williams, column 2, lines 50-55].

**Referring to claim 11**, McAdam et al. teach the method of claim 1 wherein generating an analog video signal includes generating an analog video signal with a graphical overlay pattern [column 7, line 14 through column 8 line 11, see also figure 1, VIDEO ENCODER 22].

**As per claims 28 and 29**, McAdam et al. teach the method of claim 11, further comprising encrypting a pattern identifier associated with the graphical overlay pattern and broadcasting the encrypted pattern identifier with the audio and video signals [column 5, lines 7-17, transform identifier encrypted and inserted into horizontal blanking interval of the scrambled video signal].



**5. Claims 2-5, 13-15 and 19-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over prior art of record, McAdam et al. as applied to claims 12, 18 and 1 above and in view of Chouly et al and, in the alternative, Williams.

**As per claims 2, 13, and 19**, McAdam et al. fail to teach wherein modulating/demodulating a carrier with said digitally encrypted audio signal includes using orthogonal frequency division multiplexing to form symbols.

However, Chouly et al. [Williams] do disclose modulating a carrier with said digitally encrypted audio signal includes using orthogonal frequency division multiplexing to form symbols [Chouly et al. column 3, lines 46-47, see also Williams column 2, lines 36-43].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Chouly et al.'s [Williams'] teaching of using orthogonal frequency division multiplexing to the system/method of McAdam et al., such that the multiplexer of McAdam et al. utilizes orthogonal frequency division multiplexing. One would have been motivated to modify McAdam et al.'s system/method as such in order to provide for a high level of protection because of the complexity of the orthogonal frequency division multiplex transmission technique.

**As per claims 3, 14, and 20**, McAdam et al. fail to teach using an inverse Fourier transform to convert a frequency domain signal back to the time domain and a Fourier transform unit coupled to said demodulator.

However, Chouly et al. [Williams] do disclose the method/apparatus of claim 2 and 13 respectively, including using an inverse Fourier transform to convert a frequency

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domain signal back to the time domain and a Fourier transform unit coupled to said demodulator [Chouly et al. column 4, lines 52 - 541, see also, Williams, column 2, lines 36-43].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Chouly et al.'s [Williams'] teaching of an inverse Fourier transform and a Fourier transform to the system/method of McAdam et al., such that McAdam et al.'s system would be include an inverse Fourier transformer, coupled to the modulator and the digital to analog converter on the transmitter side and a Fourier transform coupled to the demodulator on the receiver side. One would have been motivated to modify McAdam et al.'s system/method as such in order to generate the orthogonal frequency division-multiplexing signal of the frame.

**As per claim 21**, McAdam et al. teach the receiver of claim 20 including an analog-to-digital converter coupled to said Fourier transform unit [figure 15, DIA 314, 316].

**As per claim 4**, McAdam et al. as modified fail to teach providing a guard interval with an orthogonal frequency division multiplexing symbol.

However, Chouly et al. disclose the method of claim 3 including providing a guard interval with an orthogonal frequency division multiplexing symbol [column 9, line 61 and 65].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Chouly et al.'s teaching of using a guard interval with an orthogonal frequency division multiplexing symbol to the system/method of McAdam et

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al., such that the multiplexer of McAdam et al. utilizes orthogonal frequency division multiplexing with a guard interval. One would have been motivated to modify McAdam et al.'s system/method as such in order to absorb the echoes produced by multi-path channels.

**Referring to claims 5 and 24**, McAdam et al. as modified fail to teach providing said guard interval as a cyclic prefix and wherein the modulator is adapted to insert a cyclic prefix onto symbols of said modulated audio signal.

However, Chouly et al.-Williams teach providing said guard interval as a cyclic prefix onto symbols of said modulated audio signal [column 11, lines 15-16 to Chouly and column 3, lines 32-35, fig. 7 of Williams].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Chouly et al.'s teaching of providing said guard interval as a cyclic prefix to the system/method of McAdam et al., such that the multiplexer of McAdam et al. utilizes a cyclic guard interval. One would have been motivated to modify McAdam et al.'s system/method as such in order to provide for absorption of echoes due to multi-path channels [Williams, column 3, lines 32-35].

**As per claim 15**, McAdam et al. teach the transmitter of claim 14 including a digital-to-analog converter coupled to said unit [figure 9, D/A CONVERTER 212].

**As per claim 27**, McAdam et al. does not teach but Chouly et al. and Williams teach the receiver of claim 18, wherein the demodulator is to demodulate the carrier using a cyclic prefix as a guard interval [column 11, lines 15-16 to Chouly and column 3, lines 32-35, fig. 7 of Williams].

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Chouly et al.'s [Williams'] teachings of providing cyclic prefix as a guard interval to the system/method of McAdam et al., such that the demodulator of McAdam et al. utilizes a cyclic guard interval. One would have been motivated to modify McAdam et al.'s system/method as such in order to provide for absorption of echoes due to multi-path channels [Williams, column 3, lines 32-35].

**As per claims 22-23 and 25-26**, Chouly et al.'s [Williams'] cyclic prefix [i.e. guard interval] inherently comprises a portion of a transmitted/received symbol [i.e. an OFDM symbol], and that said portion inherently comprises a tail of said transmitted symbol [see for example, column 8, lines 40-60. and fig. 7 of Williams I, see also, column 9 lines 30 through column 11, line 20 column 11, lines 14-19 of Chouly et al].

#### **Action is Final**

**THIS ACTION IS FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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### **Conclusion**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taghi T. Arani whose telephone number is (571) 272-3787. The examiner can normally be reached on 8:00-5:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Taghi T. Arani, Ph.D.  
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